DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 69.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-004938
Date Inspected: 13-Dec-2008

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island

OSM Arrival Time: 630
OSM Departure Time: 1530
Location: Shanghai, China

CWI Name:	Geng Wei, Zhang Bao Wei			**CWI Present:**	☑ Yes	☐ No	
Inspected CWI report:	☐ Yes	☑ No	☐ N/A	**Rod Oven in Use:**	☑ Yes	☐ No	☐ N/A
Electrode to specification:	☑ Yes	☐ No	☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No	☐ N/A
Qualified Welders:	☑ Yes	☐ No	☐ N/A	**Verified Joint Fit-up:**	☐ Yes	☑ No	☐ N/A
Approved Drawings:	☑ Yes	☐ No	☐ N/A	**Approved WPS:**	☑ Yes	☐ No	☐ N/A
				Delayed / Cancelled:	☐ Yes	☑ No	☐ N/A

Bridge No: 34-0006
Component: OBG Assembly

Summary of Items Observed:

This report serves to document the events occurring on this date at the following location. Caltrans Quality Assurance (QA) Inspector Robert Vatcher arrived on site at the Zhenhua Port Machinery Company (ZPMC) facility at Changxing Island, in Shanghai, China, for the purpose of monitoring welding and fabrication of the San Francisco / Oakland Bay Bridge (SFOBB) components. The QA Inspector observed the following:

OBG Assembly Bay I

Welding and placement of the temporary fixture for the new Orthotropic Box Girders (OBG) continues

OBG Assembly Bay II

5AE-

Lift Interior-

QA performed a in process visual examination of the fit up between diaphragm plate to floor beam flange at panel point location DP419-001 as it was being fit up. QA arrived to ensure that no temporary welding for fit up purposes was being conducted over paint or detritus. QA found the fit up to be near tight fitting for fillet welding with a maximum opening of 2.0 millimeters at this in process location.

Lift Topside- Surveying being conducted.

No Observed Welding Activity however QA observed multiple locations where grinding is occurring for breaking edges for paint.

No deck panel to deck panel or diaphragm plate to floor beam flange welding occurring as of this time at DP351-001 to DP378-001. These panels have been partially welded by the FCAW process and already back ground. QA performed a cursory visual examination at this location. No apparent issues. DP459-001 to DP432-001 is presently having ceramic backing installed and will be ready for tack welding shortly.

5BE-

Lift Interior- No Observed Welding Activity

Lift Topside-

QA observed multiple locations where grinding is occurring for breaking edges for paint.

Surveying being conducted.

QA observed that DP460-001 to DP433-001 & DP379-001 to DP352-001 are partially welded out and require multiple passes to be completed.

QA performed Welding procedure specification verification at SEG024*-028 deck panels DP460A & DP433A by the SAW process. QA measured welding parameters in accordance with welding procedure specification WPS-B-T-2221-B-L2C-S-2 utilizing non corroded or detritus bearing 4.0 mm diameter H14 electrode wire by qualified welding operator chen Xi Feng 052692. Measured amperage at 680.0. Voltage at 32.0, travel speed at 500 mm per minute. Flux was reclaimed and strained through a large rare earth magnet and immediately reused. QA performed a cursory visual examination of the previously joined area prior to further depositing of weld metal. ZPMC QC personnel Shi Lei was present for this welding evolution as well ensuring the 20C minimum preheat was established by way of a Fluke infrared temperature thermometer.

5CE-

Lift Interior- No Observed Welding Activity

Lift Topside-

QA observed that DP353-001 to DP380-001 & DP434-001 to DP461-001 are welded out completely.

QA observed multiple locations where grinding is occurring for breaking edges for paint.

PDRNo deck panel to deck panel or diaphragm plate to floor beam flange welding occurring as of this time at DP353-001 & DP380-001 or DP434-001 & DP461-001. These joints are presently being fit up and will be ready

for tacking operations shortly.

3AE-

Lift Interior-

QA observed diaphragm plate to diaphragm plate joining operations being conducted at panel point 22.

QA observed diaphragm plate to diaphragm plate grinding operations being conducted at panel point 20 for final weld disposition. As well 6.0 millimeter size fillet weld being performed at this panel point between panels 21 and 20.

QA observed diaphragm plate to diaphragm plate grinding operations being conducted at panel point 19 for final weld disposition.

Lift Topside- No Observed Welding Activity

3BE-

Lift Interior- No Observed Welding Activity

Lift Topside-

QA performed Welding procedure specification verification at SEG016*-016 deck panels DP63A & DP64A. QA observed for this operation the FCAW process utilizing 1.4 mm diameter Supercored 71H E71T-1 electrode wire in DCEP mode which was checked out of the station on 11/28/08 at 0700. Hong Yong Li 044801 the qualified welding operator was observed as well utilizing a stringer bead method for this evolution in the initial root pass per the welding procedure specification WPS-B-T-223(2)1T. QA measured in-process temperature to be approximately 90 degrees Celsius average, amperage to be 285 (average), voltage at 29.0 and a travel speed of approximately 200 mm per minute. ZPMC QC personnel Chen Chih Ming was present to measure and record this operation.

4AE-

Lift Interior- No Observed Welding Activity

Lift Topside- Surveying being conducted. No Observed Welding Activity

4BE-

Lift Interior- No Observed Welding Activity

Lift Topside-

QA observed the in process joining of SEG020A*-005 deck plates (situated atop of the segment) DP77A & DP43A by the SAW process. QA measured welding parameters in accordance with welding procedure specification WPS-B-T-2221-B-L2C-S-2 utilizing non corroded or detritus bearing 4.0 mm diameter H14 electrode wire by qualified welding operator chen Xi Feng 052692. Measured amperage at 680.0. Voltage at 32.0, travel speed at 500 mm per minute. Flux was reclaimed and strained through a large rare earth magnet and immediately reused. QA performed a cursory visual examination of the previously joined area prior to further depositing of weld metal. ZPMC QC personnel Zhang Xian Ji was present for this welding evolution. ZPMC QC personnel Chen Chih Ming was available as well ensuring the 20C minimum preheat was established by way of a Fluke infrared temperature thermometer.

Mid bay-

Fitting and oxy-acetylene flame cutting operation being conducted at bottom plates BP037A to BP145A.

Further joining to be conducted at SEG032B-001 SP336-001 to SP309-001 by the FCAW3 process. ZPMC QC personnel Wang JieWang Jie was present to measure, o observe and document this event.

Fit up and tacking being performed at SEG028B-003 bottom plates BP113-001 to BP059-001 by qualified welder Zhou Bing 067764. QA performed a cursory visual examination of the joint which exhibited near tight to 2.0 millimeter root opening, no detritus detrimental to the final quality of the joint and a 45 degree bevel angle smooth and free of any weld inhibiting notches.

QA observed the in process joining of SEG030A-002 bottom plates SP335A & SP308A by the SAW process in the back gouged condition with additional grinding to shiny metal. QA measured welding parameters in accordance with welding procedure specification WPS-B-T-2221-B-L2C-S-2 utilizing non corroded or detritus bearing 4.0 mm diameter H14 electrode wire by qualified welding operator Wang Min 048296. Qualified welding status was verified by the presence of certification card from the welders pocket Measured amperage at 620.0, Voltage at 31.0, travel speed at 510 millimeters per minute. Preheat was measured at 80.0 degrees Celsius. Flux was reclaimed and strained through a large rare earth magnet and immediately reused. QA performed a cursory visual examination of the previously joined area prior to further depositing of weld metal. ZPMC QC personnel Wang Jie was present for this welding evolution. The above mentioned items as observed and documented by QA appears to be in conformance with the contract documents.

5CW-

Lift Interior- No Observed Welding Activity

Lift Topside- No Observed Welding Activity

5BW-

Lift Interior- No Observed Welding Activity

Lift Topside-

Back grinding being performed at SEG021*-028 deck panels DP135A to DP162 as well as SEG021*-027 DP216A to DP243A.

5AW-

Lift Interior- No Observed Welding Activity

Lift Topside- No Observed Welding Activity

4BW-

Lift Interior- No Observed Welding Activity

Lift Topside-

QA observed that multiple diaphragm plate to diaphragm plate joining operations have occurred and are occurring presently throughout the
west segment.

Random minimum tack welds installed at diaphragm plate to floor beam flanges at panel point 27.

Deck panels DP76A & DP75A, DP73A & DP39A complete joint penetration welds are completely filled out by the SAW process.

No tack welds installed at diaphragm plate to floor beam flanges at panel point 26.

QA observed that deck panels DP76A & DP75A complete joint penetration welds are filled out by the FCAW process only in the top portion and require further filling by the SAW process. As well deck panels DP73A and DP39A require the same.

4AW-

Lift Interior- No Observed Welding Activity

Lift Topside-

Deck panels DP27A & DP65A, DP68A & DP67A complete joint penetration welds are completely filled out by the SAW process.

Tack welds installed at diaphragm plate to floor beam flanges at panel point 25.

QA observed that deck panels DP68A & DP67A complete joint penetration welds are entirely filled out in the top

portion by the SAW process. As well deck panels DP27A and DP65A are in the same condition.

3BW-

Lift Interior- No Observed Welding Activity

Lift Topside-

QA observed diaphragm plate to diaphragm plate welds installed at panel point 23. No Diaphragm plate to floor beam flange full length fillet welds installed at this time. No joining operations occurring at this location at this time as well.

QA observed diaphragm plate to diaphragm plate welds installed at panel point 24. Diaphragm plate to floor beam flange full length fillet welds installed at this time as well with the exception of both ends for the remainder of the last diaphragm plate. Also only the north side diaphragm plate to floor beam flange has been joined.

3AW-

Lift Interior-

Lift Topside-

QA observed the in process joining of CA001-W4, CA1A deck plate to edge plate (situated atop of the segment for permanent installation) by the FCAW process. QA observed ZPMC QC personnel Wu Shi Gao measure welding parameters in accordance with welding procedure specification WPS-B-T-2232-TC-U4b-S-2 utilizing non corroded or detritus bearing FCAW process utilizing 1.4 mm diameter Supercored 71H E71T-1 electrode wire in DCEP mode as well utilizing a stringer bead method per the welding procedure specification. QA observed the measured amperage to be 290 (average), voltage at 30.0 and a travel speed of 289 millimeters per minute. Preheat was measured to be approximately 78 degrees Celsius by way of Fluke infrared temperature gun.

QA observed the in process joining of SEG13A-032 deck plates (situated atop of the segment for permanent installation) DP4A & DP59A by the SAW process. QA observed ZPMC QC personnel Wu Shi Gao measure welding parameters in accordance with welding procedure specification WPS-B-T-2221-B-L2C-S-2 utilizing non corroded or detritus bearing 4.0 mm diameter H14 electrode wire by qualified welding operator Wang Lanying 045265. Measured amperage at 620.0. Voltage at 32.0, travel speed at 450 mm per minute. Flux was reclaimed and strained through a large rare earth magnet and immediately reused. QA performed a cursory visual examination of the previously joined area prior to further depositing of weld metal. 20C minimum preheat was established and measured by way of a Fluke infrared temperature thermometer.

QA observed that air handlers have been installed at the entrance to this lift for confined space purposes.

QA observed one joining operation at panel point 19, FB015-003 to SEG013-032 edge panel.

North Sub-Assembly Area (Outside of OBG)

No observed joining operations

Summary of Conversations:

No relevant conversations this date.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Peter Dauterman, who represents the Office of Structural Materials for your project.

Inspected By:	Vatcher,Robert	Quality Assurance Inspector
Reviewed By:	Cuellar,Robert	QA Reviewer